

In the Claims

This listing of claims will replace all prior versions and listings of claims in this application.

1 - 14 (Cancelled).

15 (Currently amended). A process for isolatingidentifying an antagonist of the bitter taste receptor activity of the polypeptide encoded by a polynucleotide selected from the group consisting of:

- (a) a polynucleotide encoding at least a mature form of a polypeptide having [[a]]the deduced amino acid sequence as shown in SEQ ID NO: 1;
- (b) a polynucleotide having [[a]]the coding sequence, as shown in SEQ ID NO: 2 encoding at least a mature form of the polypeptide having the deduced amino acid sequence as shown in SEQ ID NO:1;
- (c) a polynucleotide encoding a fragment or derivative of a polypeptide encoded by a polynucleotide of any one of (a) to (b), wherein in said derivative one to twenty or more amino acid residues are conservatively substituted compared to said polypeptide, and said fragment or derivative has bitter taste receptor activity when contacted with an agonist selected from the group consisting of acetylthiourea, N,N-dimethylthioformamide, N,N'-diphenylthiourea, N-ethylthiourea, 2-imidazolidinethione, 4(6)-methyl-2-thiouracil, N-methylthiourea, phenylthiocarbamide, 6-phenyl-2-thiouracil, 6-propyl-2-thiouracil, tetramethylthiourea, thioacetamide, thioacetanilide, 2-thiobarbituric acid and 2-thiouracil;
- (d) a polynucleotide which is at least 50% 85% identical to a polynucleotide as defined in any one of (a) to (c) and which codes for encodes a polypeptide having bitter taste receptor activity when contacted with an agonist selected from the group consisting of acetylthiourea, N,N-dimethylthioformamide, N,N'-diphenylthiourea, N-ethylthiourea, 2-imidazolidinethione, 4(6)-methyl-2-thiouracil, N-methylthiourea, phenylthiocarbamide, 6-phenyl-2-thiouracil, 6-propyl-2-thiouracil, tetramethylthiourea, thioacetamide, thioacetanilide, 2-thiobarbituric acid and 2-thiouracil; and
- (e) a polynucleotide the complementary strand of which hybridizes under moderate-high

stringency hybridization conditions to a polynucleotide as defined in any one of (a) to (d)
and which codes for encodes a polypeptide having bitter taste receptor activity when
contacted with an agonist selected from the group consisting of acetylthiourea, N,N-
dimethylthioformamide, N,N'-diphenylthiourea, N-ethylthiourea, 2-imidazolidinethione,
4(6)-methyl-2-thiouracil, N-methylthiourea, phenylthiocarbamide, 6-phenyl-2-thiouracil, 6-
propyl-2-thiouracil, tetramethylthiourea, thioacetamide, thioacetanilide, 2-thiobarbituric
acid and 2-thiouracil;

wherein said process comprises the steps of:

(1) contacting said polypeptide, or a host cell genetically engineered with said polynucleotide or
with a vector containing said polynucleotide, with an agonist of bitter taste receptor activity
selected from the group consisting of acetylthiourea, N,N-dimethylthioformamide, N,N'
diphenylthiourea, N-ethylthiourea, 2-imidazolidinethione, 4(6)-methyl-2-thiouracil, N-
methylthiourea, phenylthiocarbamide, 6-phenyl-2-thiouracil, 6-propyl-2-thiouracil,
tetramethylthiourea, thioacetamide, thioacetanilide, 2-thiobarbituric acid, 2-thiouracil and
functional derivatives thereof;

(2) contacting said polypeptide, or a host cell genetically engineered with said polynucleotide or with a vector containing said polynucleotide, with a potential antagonist;
and

(3) determining whether the potential antagonist antagonizes the bitter taste receptor activity of said polypeptide.

16 (currently amended). The process of claim 15 further comprising the contacting of the
polypeptide with an agonist of the respective bitter taste receptor activity wherein steps (1) and
(2) are carried out concomitantly.

17 (currently amended). The process of claim 16 in which said contacting with an agonist
wherein step (2) is carried out prior to step (1), concomitantly or after step (1) of claim 15.

18 (Cancelled).

19 (Currently amended). A process selected from the group consisting of:

A. a process for the production of a food or any precursor material or additive employed in the production of foodstuffs comprising the steps of: ~~either~~

~~(i) isolating a compound that binds to an isolated polypeptide encoded by an isolated polynucleotide selected from the group consisting of:~~

~~(a) a polynucleotide encoding at least a mature form of a polypeptide having a deduced amino acid sequence as shown in SEQ ID NO: 1;~~

~~(b) a polynucleotide having a coding sequence, as shown in SEQ ID NO: 2 encoding at least a mature form of the polypeptide;~~

~~(c) a polynucleotide encoding a fragment or derivative of a polypeptide encoded by a polynucleotide of any one of (a) to (b), wherein in said derivative one or more amino acid residues are conservatively substituted compared to said polypeptide, and said fragment or derivative has bitter substance binding activity;~~

~~(d) a polynucleotide which is at least 50% identical to a polynucleotide as defined in any one of (a) to (c) and which codes for a polypeptide having bitter substance binding activity; and~~

~~(e) a polynucleotide the complementary strand of which hybridizes under moderate hybridization conditions to a polynucleotide as defined in any one of (a) to (d) and which codes for a polypeptide having bitter substance binding activity;~~

~~wherein said isolating step further comprises:~~

~~(1) contacting said isolated polypeptide, or a host cell genetically engineered with said isolated polynucleotide or with a vector containing said isolated polynucleotide, with a compound;~~

~~(2) detecting the presence of the compound which binds to said polypeptide; and~~

~~(3) determining whether the compound binds said polypeptide;~~

~~or~~

~~(ii) isolating an antagonist of the bitter taste receptor activity of an isolated polypeptide encoded by an isolated polynucleotide selected from the group consisting of:~~

(a) ~~a polynucleotide encoding at least a mature form of a polypeptide having a deduced amino acid sequence as shown in SEQ ID NO: 1;~~

(b) ~~a polynucleotide having a coding sequence, as shown in SEQ ID NO: 2 encoding at least a mature form of the polypeptide;~~

(c) ~~a polynucleotide encoding a fragment or derivative of a polypeptide encoded by a polynucleotide of any one of (a) to (b), wherein in said derivative one or more amino acid residues are conservatively substituted compared to said polypeptide, and said fragment or derivative has bitter taste receptor activity;~~

(d) ~~a polynucleotide which is at least 50% identical to a polynucleotide as defined in any one of (a) to (c) and which codes for a polypeptide having bitter taste receptor activity; and~~

(e) ~~a polynucleotide the complementary strand of which hybridizes under moderate hybridization conditions to a polynucleotide as defined in any one of (a) to (d) and which codes for a polypeptide having bitter taste receptor activity;~~

~~wherein said isolating step further comprises:~~

(1) ~~contacting said isolated polypeptide, or a host cell genetically engineered with said isolated polynucleotide or with a vector containing said isolated polynucleotide, with a potential antagonist; and~~

(2) ~~determining whether the potential antagonist antagonizes the bitter taste receptor activity of said polypeptide;~~

~~and wherein the process further comprises the subsequent step of~~

(1) identifying an antagonist according to the process of claim 15; and

(2) admixing the identified compound or antagonist with a foodstuff foodstuffs or any precursor material or additive employed in the production of foodstuffs; and

B. a process for the production of a nutraceutical or pharmaceutical composition comprising the steps of: ~~either~~

(i) ~~isolating a compound that binds to an isolated polypeptide encoded by an isolated polynucleotide selected from the group consisting of:~~

(a) ~~a polynucleotide encoding at least a mature form of a polypeptide having a deduced amino~~

~~acid sequence as shown in SEQ ID NO: 1;~~

(b) ~~a polynucleotide having a coding sequence, as shown in SEQ ID NO: 2 encoding at least a mature form of the polypeptide;~~

(c) ~~a polynucleotide encoding a fragment or derivative of a polypeptide encoded by a polynucleotide of any one of (a) to (b), wherein in said derivative one or more amino acid residues are conservatively substituted compared to said polypeptide, and said fragment or derivative has bitter substance binding activity;~~

(d) ~~a polynucleotide which is at least 50% identical to a polynucleotide as defined in any one of (a) to (c) and which codes for a polypeptide having bitter substance binding activity; and~~

(e) ~~a polynucleotide the complementary strand of which hybridizes under moderate hybridization conditions to a polynucleotide as defined in any one of (a) to (d) and which codes for a polypeptide having bitter substance binding activity;~~

~~wherein said isolating step further comprises:~~

(1) ~~contacting said isolated polypeptide, or a host cell genetically engineered with said isolated polynucleotide or with a vector containing said isolated polynucleotide, with a compound;~~

(2) ~~detecting the presence of the compound which binds to said polypeptide; and~~

(3) ~~determining whether the compound binds said polypeptide;~~

~~or~~

(ii) ~~isolating an antagonist of the bitter taste receptor activity of an isolated polypeptide encoded by an isolated polynucleotide selected from the group consisting of:~~

— (a) ~~a polynucleotide encoding at least a mature form of a polypeptide having a deduced amino acid sequence as shown in SEQ ID NO: 1;~~

— (b) ~~a polynucleotide having a coding sequence, as shown in SEQ ID NO: 2 encoding at least a mature form of the polypeptide;~~

— (c) ~~a polynucleotide encoding a fragment or derivative of a polypeptide encoded by a polynucleotide of any one of (a) to (b), wherein in said derivative one or more amino acid residues are conservatively substituted compared to said polypeptide, and said fragment or derivative has bitter taste receptor activity;~~

(d) a polynucleotide which is at least 50% identical to a polynucleotide as defined in any one of (a) to (c) and which codes for a polypeptide having bitter taste receptor activity; and
(e) a polynucleotide the complementary strand of which hybridizes under moderate hybridization conditions to a polynucleotide as defined in any one of (a) to (d) and which codes for a polypeptide having bitter taste receptor activity;

wherein said isolating step further comprises:

(1) contacting said isolated polypeptide, or a host cell genetically engineered with said isolated polynucleotide or with a vector containing said isolated polynucleotide, with a potential antagonist; and

(2) determining whether the potential antagonist antagonizes the bitter taste receptor activity of said polypeptide;

and wherein the process further comprises the subsequent step of

(1) identifying an antagonist according to the process of claim 15; and

(2) formulating the identified compound or antagonist with an active agent in a pharmaceutically acceptable form.

20- 24 (Cancelled).